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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/915,985   | 07/25/2001  | Detlef Hommel        | 1999P8006 US N      | 8172             |
| 24131  | 7590        | 08/12/2004           | EXAMINER            |                  |
| LERNER AND GREENBERG, PA<br>P O BOX 2480<br>HOLLYWOOD, FL 33022-2480 |             |                      | IM, JUNGHWAN M      |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2811                |                  |

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/915,985 | <b>Applicant(s)</b><br>HOMMEL ET AL. |  |
|                              | <b>Examiner</b><br>Junghwa M. Im     | <b>Art Unit</b><br>2811              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Henry et al. (US 4570172), hereinafter Henry.

Regarding claim 1, Fig. 3 of Henry shows a semiconductor component for generating visible polychromatic light, comprising:

a semiconductor chip having a first semiconductor layer (6) and a second semiconductor layer (1) adjacent to said first semiconductor layer;

said second semiconductor layer including an electroluminescent region emitting visible light of a first color having a first wavelength ( $\lambda$ ; col. 4, lines 3-14);

said first semiconductor layer having a first band gap and being specially doped (p-doped) to form states of allowed energy levels within said first band gap, said electroluminescent region having a second band gap, said first band gap being smaller than said second band gap (col. 4, lines 3-33);

said first semiconductor layer absorbing part of the visible light of the first color and said first semiconductor layer re-emitting visible light of a second color having a second wavelength ( $\lambda + \Delta\lambda$ ), the second color being different from the first color, and the second wavelength being longer than the first wavelength (col. 4, lines 3-33).

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Regarding claim 3, Fig. 5 of Henry shows the first layer (7) includes a material with an absorption edge having an energy level corresponding to a third wavelength which is longer than the first wavelength of the visible light emitted by the semiconductor layer and is shorter than the second wavelength; and , re-emitting radiation of the second wavelength when excited with radiation of a wavelength shorter than the third wavelength (col. 4, lines 47-68).

Regarding claim 4, Henry discloses a substrate for epitaxially growing the second semiconductor layer is also utilized as the first semiconductor layer (col. 4, lines 33-40).

Regarding claims 5 and 6, Fig. 3 of Henry a growth substrate (4) and the first semiconductor layer (6) is disposed between the growth substrate and the second semiconductor layer (1).

Note that Note that "epitaxially" is a process designation, and would thus not carry patentable weight in this claim drawn to a product. See *In re Thorp*, 227 USPQ 964 (Fed. Cir. 1985).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Mensz (US 5422902).

Regarding claim 7, Fig. 3 of Henry shows substantially the entire claimed structure except "said first semiconductor layer includes doped ZnSe; and said second semiconductor layer has an active zone containing  $\text{Cd}_x\text{Zn}_{1-x}\text{Se}/\text{ZnSe}$  with  $0 \leq x \leq 1$ ."

Fig. 5 of Mensz that an LED with a doped  $\text{CdZnSe}/\text{ZnSe}$  layer for an active layer (26; col. 6, lines 35-38), formed on ZnSe layer (24, 26),

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the teachings of Mensz to the device of Henry in order to have a doped  $\text{CdZnSe}/\text{ZnSe}$  layer for an active layer on the ZnSe layer since using the specified materials in the first and second layers can improve reliability of the device with better light emitting efficiency.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Liao et al. (US 4784722), herein after Liao.

Regarding claim 8, Henry fails to teach that semiconductor chip being disposed in a parabolic mirror. Liao discloses that a light emitting diode with a parabolic mirror (32) in Fig. 3.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Liao into the device of Henry in order to have a parabolic mirror since a parabolic mirror on a light emitting device can allow the higher efficiency of the reflectivity favoring the performance of the device.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Camras et al. (US Pub. 2002/0093023), herein after Camras.

Regarding claims 9 and 10, Fig. 3 of Henry shows substantially the entire claimed structure except “said first semiconductor layer and said second semiconductor layer are configured to emit white light such from said semiconductor chip.” Camras discloses an LED which emits a white light through combining two different colored lights (paragraph 0072).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Camras into the device of Henry in order to emit a white light through combining two different colored lights for an specified design application.

Note that Camras discloses that it is well known in the art to combine two different colored lights to provide a white light as taught in paragraph [0072].

### ***Response to Arguments***

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

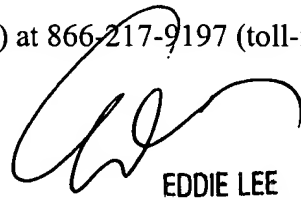
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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